

## ANALYSIS OF MOBILE APPLICATIONS THAT CONTRIBUTE TO REDUCING FOOD WASTE

MARTIN ANAMARIA ROXANA\*<sup>1,2</sup>, RUSU ANDREI<sup>1</sup>, GORDAN MARIUS<sup>1</sup>,  
ADAMOV TABITA<sup>1</sup>, IANCU TIBERIU<sup>1,2</sup>

<sup>1</sup>*University of Life Sciences "King Mihai I" from Timisoara,  
Faculty of Management and Rural Tourism, Timisoara, Romania*

<sup>2</sup>*Institution Organizing Doctoral Studies - University of Life Sciences "King Mihai I" from  
Timisoara, Doctoral school Plant and Animal Resources Engineering, Romania*

\*Corresponding author's e-mail: anamaria.martin@usvt.ro

**Abstract:** *The main objective of this research paper is to identify the most used mobile applications that contribute to reducing food waste (FW) and to identify their role in this process. FW refers to food designated for human consumption that is wasted or lost. This includes not only unfinished meals at restaurants and leftovers discarded at home, but also raw materials and produce lost during farming, harvesting, transportation, and storage processes. FW constitutes to be one of the most major problems of our era because globally, over one-third of food produced for human consumption is wasted. The European Union estimates that 20% of its food production is lost or wasted, and concurrently, 43 million individuals in the European Union lack the financial resources to secure daily meals that provide adequate nutrition. Consequently, the volume of the food that is wasted globally is sufficient for feeding three billion individuals, whereas food waste in Europe could sustain 200 million, in Latin America 300 million, and in Africa 300 million people.*

**Key words:** *food security, food production, food supply chain.*

### INTRODUCTION

With the population expanding and climate change degrading extensive areas of previously arable land globally, it is imperative to provide a sustainable food supply worldwide. This involves recognizing and minimizing the substantial quantity of food we waste. [4]

Food waste (FW) refers to food designated for human consumption that is wasted or lost. This includes not only unfinished meals at restaurants and leftovers discarded at home, but also raw materials and produce lost during farming, harvesting, transportation, and storage processes. [5]

In the European Union, approximately 59 million tonnes of FW (132 kg per capita) are produced each year, with an estimated market worth of 132 billion euros. [3,6]

Worldwide, approximately one-third of all food produced for human consumption is lost or wasted. [8] Simultaneously, approximately 42 million individuals are unable to afford a nutritious meal every other day. [7] The volume of food wasted globally is sufficient to feed three billion individuals, whereas food waste in Europe could sustain 200 million, in Latin America 300 million, and in Africa 300 million people. [14]

The response to evolving economic and social conditions is to seek methods for reducing food waste, fostering mindful consumption, and ensuring responsible sharing of surpluses. This process must be underpinned by an effective information system that fulfills customer expectations while simultaneously encouraging sustainable consumption choices. An example is mobile applications that provide information, promotion, and education. [1]

Mobile applications designed to mitigate food waste have emerged as a growing trend and are freely accessible in mobile application marketplaces such as Google Play and the App Store. These Food Waste Management Alliances (FWMAs) connect individuals with surplus food producers, aiming to eliminate waste and promote Zero Hunger, the second of the 17 Sustainable Development Goals (SDGs) outlined in the United Nations'

2030 Agenda. Nonetheless, the efficacy of these FWMA's and their impact on the food supply chain remains inadequately comprehended. Consequently, to present a comprehensive overview and facilitate future research, we conduct a systematic review. [2]

## MATERIALS AND METHODS

This research analyzed external data from third parties, data from relevant organizations in the field of competence, and scientific papers by renowned authors, along with some other relevant institutions. Other external data were obtained by accessing scholarly databases, including Web of Science, ResearchGate, and Google Scholar.

## RESEARCH RESULTS

An application exists for individuals seeking to conserve finances and reduce environmental impact by reducing food waste. In this part of the research paper, a few widely utilized applications are presented that enable everyone to contribute positively with no effort and assist in reducing potential food waste.

### 1. *Too Good to Go*

A complete list of eateries, cafes, bakeries, and grocery stores that offer unsold food in "magic bags" may be found on the Too Good To Go app. Customers enjoy discovering what's in their bag in addition to receiving reduced food. These bags are far less expensive than the average dine-in experience, ranging from \$4 to \$6. [15]

As a Certified B Corporation, Too Good To Go has collaborated with more than 87,000 local food companies and saved more than 70 million meals globally. Additionally, their campaign educates people to "Look, Smell, Taste" food before discarding it.

Using the app, you may place a direct food order, pick it up, and pay a fraction of the cost! In addition to saving you money, this is an excellent method of avoiding food waste. [16]

### 2. *OLIO*

By bringing neighbors together, Olio distributes extra food that might have otherwise ended up in the trash. You may just take a picture and check whether anybody nearby would want the things instead, regardless of whether you changed your mind or bought too much at the grocery shop. Anything from unsold food or vegetables that have reached their expiration date from a nearby store to leftover catering materials for an event or extra food that won't be consumed before a holiday can be shared or picked up by anyone. Additionally, Olio collaborates with retail, catering, and hospitality companies to collect excess food around the clock and distribute it to the neighborhood. [17]

### 3. *Kitchen*

A fantastic multifunctional app for reducing food waste is Kitche. With just a fast snap of your grocery shopping receipt, Kitche will help you keep track of the food you have and make sure you never buy more than you need, so you never have to worry about having too much or too little food at home again.

Additionally, the app is tailored to you, suggesting thousands of recipes based on your dietary preferences and the ingredients you have on hand. This makes it perfect for people like us who are bored with cooking and don't know what to create. [11]

### 4. *Misfits Market*

The purpose of the US-based app Misfits Market is to provide a home for unusual-looking food. The goal of Misfits Market is straightforward: to provide consumers with premium organic food while ending the cycle of food waste. In order to identify inefficiencies in the food system and sell food that would otherwise go to waste, the company works closely with farmers and food producers. [12]

By offering their products for up to 40% less than grocery store rates and delivering them straight to your home, Misfits Market assists in bringing farmers and consumers together. [12]

#### 5. *No Waste*

This robust tool makes it simple to keep an eye on the expiration dates of the products in your refrigerator and pantry, ensuring that nothing is thrown out needlessly. A wiser, more environmentally friendly grocery shopping experience is ensured by simply entering the expiration date of each product and turning on alerts that let you know when anything is close to expiring.

To help hold you (and everyone else using the app) accountable, NoWaste also has a social media community where you can post your food waste statistics. [13]

#### 6. *Imperfect Foods*

Imperfect Foods is committed to preserving fresh food and reducing excess food that would otherwise be thrown out due to its appearance. This business offers affordable groceries delivered right to your door, providing leftover food and produce that isn't perfect a chance at the love they deserve.

Some unexpected "ugly" produce items that would have been thrown out because of their flaws are revealed when the Imperfect Foods shipment is opened. However, these identical ingredients are shipped with the hope that they will still be accepted as wholesome and able to provide unique flavor to a variety of dishes. [10].

#### 7. *Food for Everyone*

The Food for All app enables restaurants to engage with consumers and provide food that would otherwise be thrown away, much like some of the other applications on our list. Anybody can buy the meals an hour before the restaurants close, and the savings are frequently as high as 80%. You may view participating stores in your area by downloading the app and inputting your location. Food donations to those in need can also be made using the app. [9]



**Figure 1. Using mobile applications to contribute to reducing food waste**

## CONCLUSIONS

Downloading these mobile applications is a simple way for everyone to help reduce food waste. It can have a significant impact on the environment as a whole. Ultimately, we all want to improve the world, and even small actions, such as downloading a mobile application for food waste, can help us get there.

Consequently, mobile applications facilitate the connection between food suppliers and consumers. They aid in reducing waste at points of sale, enhance social consciousness, and advocate for a sustainable food system. Therefore, they help reduce food waste and mitigate its adverse effects on the natural environment. The examined applications possess significant potential for reducing food waste. This exemplifies the potential of mobile technology in addressing social issues and fostering pro-environmental behavior.

## REFERENCES

- [1]. **BALIŃSKA AGATA, WERENOWSKA AGNIESZKA, JASKA EWA**, The importance of mobile applications in reducing food waste – the example of the toogoodtogo application. <https://www.jomswsge.com/pdf-188723-114014?filename=The%20importance%20of%20mobile.pdf>
- [2]. **HONG JIEQUAN, JAEGLER ANICIA, GERGAUD OLIVIER**, Mobile applications to reduce food waste in supply chains: a systematic literature review. <https://www.emerald.com/insight/content/doi/10.1108/bfj-09-2022-0742/full/html>
- [3]. **COMMISSION STAFF WORKING DOCUMENT. IMPACT ASSESSMENT REPORT**. Directive of the European Parliament and of the Council amending Directive 2008/98/EC on waste. [https://eur-lex.europa.eu/resource.html?uri=cellar:1fefebb0-1b4e-11ee-806b-01aa75ed71a1.0001.02/DOC\\_5&format=PDF](https://eur-lex.europa.eu/resource.html?uri=cellar:1fefebb0-1b4e-11ee-806b-01aa75ed71a1.0001.02/DOC_5&format=PDF)
- [4]. \*\*\* **EARTH**, <https://earth.org/countries-that-waste-the-most-food/>
- [5]. \*\*\* **EARTH**, <https://earth.org/what-is-food-waste/>
- [6].\*\*\* **EUROSTAT** [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Food\\_waste\\_and\\_food\\_waste\\_prevention\\_-\\_estimates](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Food_waste_and_food_waste_prevention_-_estimates)
- [7]. \*\*\* **EUROSTAT**, [https://ec.europa.eu/eurostat/databrowser/view/ilc\\_mdex03/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/ilc_mdex03/default/table?lang=en)
- [8]. \*\*\* **FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS**. <https://www.fao.org/4/i2050e/i2050e.pdf>
- [9].\*\*\* **FOOD FOR ALL**, <https://foodforalluk.com/>
- [10].\*\*\* **IMPERFECT FOODS**. <https://www.imperfectfoods.com/>
- [11]. \*\*\* **KITCHE**, <https://kitche.co/>
- [12].\*\*\* **MISFITSMARKET**, <https://www.misfitsmarket.com/?srsltid=AfmBOotcTwCpvLMqgF4g3iSMOwmn1z5u1leasdsdabot94spevAMa4J>
- [13].\*\*\* **NO WASTE**. <https://www.nowasteapp.com/>
- [14]. \*\*\* **STOP WASTING FOOD. FOOD WASTE FACTS**. <https://stopwastingfoodmovement.org/food-waste/food-waste-facts/>
- [15].\*\*\* **TO GOOD TO GO**, <https://www.toogoodtogo.com/en-us>
- [16]. \*\*\* **WIKIPEDIA**, [https://en.wikipedia.org/wiki/Too\\_Good\\_To\\_Go](https://en.wikipedia.org/wiki/Too_Good_To_Go)
- [17]. <https://www.postharvest.com/blog/7-mobile-apps-that-help-consumers-reduce-food-waste>